PLACE-TO-PLACE PRICE COMPARISONS FOR SELECTED ALBERTA COMMUNITIES 1984

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PREFACE

The Alberta Bureau of Statistics would like to express its appreciation to all those who participated in and provided information for the annual Place-to-Place Price Comparison Survey. The Bureau would especially like to thank the many merchants of Alberta who participated in the survey, the municipal offices of the survey towns that provided data, the Alberta Public Utilities Board, the Alberta and Saskatchewan Offices of Canada Mortgage and Housing Corporation, the Statistics and Administrative Support Division of Alberta Municipal Affairs, the Policy and Planning Branch of Alberta Housing, the Edmonton Regional Office of Statistics Canada, and the Prices Division of Statistics Canada in Ottawa.

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INTRODUCTION

The Place-to-Place Price Comparison Survey is an annual survey undertaken by the Survey Operations Unit of the Alberta Bureau of Statistics. The survey results are presented annually in the publication, Place-to-Place Price Comparisons For Selected Alberta Communities. The objective of the survey is to compare the price levels in selected Alberta communities of a basket of 250 goods and services during a specific survey period. The price comparisons are Edmonton-based and are presented in the form of spatial price indexes. The indexes contained in the 1984 publication cannot be compared to those of any previous year, as they have not been designed to measure changes over time.

The publication is divided into three sections. The first section, PRICE INDEXES, provides a discussion of the concept of spatial indexes and contrasts them with other types of indexes commonly used today. The second section, METHODOLOGY, outlines the survey design of the place-to-place survey and contains an explanation of the construction of price indexes. The discussion on methodology is followed by the SUMMARY ANALYSIS section in which a descriptive analysis of both Edmonton-based price indexes and inter-community indexes is presented. The summary analysis is accompanied by four tables.

Tables 1, 2 and 3 present Edmonton-based price indexes for twenty selected communities (Edmonton, the base, and nineteen others) throughout Alberta. The indexes contained in these tables include an all-item group, a food-item group, and a non-food group. Table 4 of the summary analysis presents inter-community indexes which provide direct price comparisons of an eighty-five item basket of goods and services between any two of the survey communities.

A two-part appendix follows the analysis section. Appendix A presents a detailed background of the survey field work and data calculations. Appendix B contains a list of all items surveyed as well as a breakdown of the weights used in the index calculations.

PRICE INDEXES

In general, a price index is simply a tool or unit by which to compare and assess groups of price data; it will demonstrate how specific groupings of data differ from a base time period, a base location or from some other type of reference point. Price indexes can refer to a single good or a group of goods. Those which measure price differences of a single commodity are referred to as price ratios or a simple price indexes.[1] Those which measure differences between groups of goods are referred to as aggregate or complex price indexes.

In constructing price indexes, the base reference point is usually set at 100, to enable the indexes to be interpreted in percentage terms of the base. For example, a price index of 150 shows a difference of fifty percent between the price index value and the reference base index of 100. Conversely, an increase of forty percent in a price index over its base time period means the index value will be 140 as compared to its base period value.

The two main types of price indexes in common usage today are spatial indexes and temporal indexes. A spatial price index, the type constructed in this publication, is a geographically-based index which measures price differences between various locations of a specific "basket" of goods and services at a specific point in time. A spatial index can be constructed to compare several communities to one base location, or it may be constructed to compare any two communities with each other instead of with one reference location. Both types of spatial indexes are presented in this publication.[2]

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[1] Simple price indexes are obtained by dividing the given price of a commodity by the base reference price and multiplying by 100.

[2] The methodology of the construction of these two types of spatial indexes is presented in later sections of the publication.

It must be emphasized that spatial price indexes do not measure price differences over time, but instead measure price differentials between communities at a specific point in time. A spatial index, therefore, represents a cross-section of prices in various communities at one point in time.

A temporal price index on the other hand, is a time-based index. It is a time-series analysis designed to measure a change in the price levels of a constant basket of goods and services between a base reference period and another point in time. As with spatial indexes, a designated base (in this case, a specific reference year) is set at 100, and the value of the index of any other survey period is expressed as a percentage of the base reference year. Since the quality and quantity of goods surveyed remains constant from one period to the next, a temporal price index measures only price movements over time.

Temporal price indexes can be constructed at almost any geographical level for a wide variety of goods and services.[3] In Canada, the most widely used temporal price index is the Consumer Price Index (CPI) which is produced by Statistics Canada on a monthly basis across the country. The purpose of the CPI is to describe in general terms, price movements of those goods and services which Canadian consumers in urban areas regularly purchase in the market place.

A third type of price index, and one seldom constructed, is a cost-of-living index. Cost-of-living indexes are temporal indexes which attempt to measure changes in the cost of maintaining a designated standard of living. Certain conceptual and methodological problems, however, make it difficult to construct a truly representative cost-of-living index. For example, measuring

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[3] The selection of goods and/or services for the basket will depend on the purpose of the specific index being constructed. Some temporal indexes may relate to general retail consumer goods, others to wholesale, agricultural or industrial goods.

a standard of living through price indexes assumes that all features that contribute to a particular standard of living are both measurable and can be purchased in the market place. Since a designated standard of living may also involve many intangible aspects, it is difficult for a cost-of-living index to accurately capture the true costs of maintaining a certain standard of living. Measuring the cost-of-living is also complicated by the fact that when prices of goods change, consumers tend to make substitutions for those goods. Differing consumer tastes, preferences, incomes and income taxes also distort the measurement of the cost-of-living. Rigorous methodology to deal with these issues has not as yet been fully developed, and hence, the cost-of-living index is a type of price index that is seldom constructed.

METHODOLOGY

1. Survey Design

The Place-to-Place Comparison Survey is an annual survey conducted by the Bureau of Statistics, for selected communities in the province. The survey takes place over a period of three days during the second week of June. In 1984 the survey was conducted from June 11 to June 13.

The selection of survey communities is based on any of the following criteria:

(a) The community chosen should be a distribution or trading centre for an area;

(b) The population of the community should be sufficient to support a retail and service trade industry, offering a representative sample of goods and services for pricing; or

(c) There should be planned or ongoing development of a major industrial project for the community or the surrounding area.

Based on the above points, a total of twenty communities was selected for the 1984 survey. The centres chosen were:

Edmonton
Bonnyville
Brooks
Camrose
Crowsnest Pass
Drayton Valley
Drumheller
Fort McMurray
Grande Prairie
High Level
High River
Hinton
Lethbridge
Lloydminster
Medicine Hat
Peace River
Red Deer
Rocky Mountain House
Slave Lake
Whitecourt

These were the same twenty communities surveyed for the 1983 comparison. A map denoting the location and price index of each survey location is presented in Figure 1 (page 13).

In each of the survey communities, field personnel collect prices of a specific basket of consumer goods and services. The basket of goods and services is selected from the list of those items priced by Statistics Canada for the monthly Consumer Price Index.[4] Selection from the Statistics Canada list for the Alberta survey is based on the following criteria:

(a) The items are thought to be representative of goods and services typically consumed by Albertans living in cities, and small and medium-size towns.

(b) The items are judged to have widespread availability and, hence, price comparability across all twenty communities, making their inclusion in the basket desirable.

This year a total of 250 goods and services was selected to be priced by survey personnel. This 250-item basket was identical to that surveyed in 1983. A list of those items surveyed can be found in Appendix B.

When the price data of the 250 items are collected, price indexes comparing the nineteen different locations with Edmonton are constructed for each survey community. For each community, twenty indexes are produced. Three are aggregate indexes; the remaining seventeen relate to specific groups of items.

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[4] The Statistics Canada basket of survey items is based on a national Family Expenditure Survey conducted every four years. In the Family Expenditure Survey, the goods and services purchased by a scientifically selected sample of Canadian households are surveyed. As well, the relative importance of these items in the family budget is measured.

At the aggregate level, the three indexes constructed are:

(a) an all-item index which covers all goods and services (up to 250) surveyed in each community;

(b) a food index with all food items (up to 115) surveyed; and

(c) a non-food index, which includes the remaining items of the basket of goods and services.

The seventeen more specific indexes represent the different categories of the food and non-food indexes. The specific food indexes are:

Dairy Products
Fats and Oils
Cereals and Breads
Processed Fruits and Vegetables
Fresh Fruit and Vegetables
Meat, Fish and Poultry
Frozen and Packaged Food
Restaurant Food

The non-food price indexes are:

Personal Care Products
Household Supplies
Household Services
Household Equipment
Recreation and Leisure
Transportation
Clothing
Shelter
Utilities

A general discussion of the methodology of index construction is presented in the following section.

2. Index Construction

As previously discussed, a price index is simply a tool to determine how prices differ between groups of data. The simplest type of price index uses

simple price ratios to show how prices differ in comparison to a base time period, a base location, or some other standard.

Price indexes are usually expressed as the percentage difference between that price selected as the base price, and the other observed price. For example, in terms of a spatial index, if the price of a loaf of bread at a base location was $.50, while in another surveyed location the same loaf cost $.60, the simple price-ratio would be:

$$\frac{.60}{.50} = \frac{1.2}{1}$$

To express this in terms of an index number, the ratio is multiplied by 100, or:

$$\frac{.60}{.50} \times 100 = 120$$

The resulting price index shows that the price of bread is 20 percent higher in the surveyed location when compared to the base location. Simple price indexes such as this can be constructed for each item priced in the place-to-place survey.

When, however, the prices of several commodities are compared collectively between two or more locations, more complex price indexes[5] need to be constructed. An index comparing several goods can be constructed by taking an average of the simple price ratios of the various goods and services being compared.

For example, suppose prices have been observed for three specific goods in two communities, with location A serving as the base community and location B representing the comparative community. The price of good 1 in location A is denoted as P_{A1}, and in location B it is denoted as P_{B1}. Therefore, the price ratio for good 1 would be: $\frac{P_{B1}}{P_{A1}}$, that for good 2 would be $\frac{P_{B2}}{P_{A2}}$, and for good 3 would be $\frac{P_{B3}}{P_{A3}}$.

[5] More complex price indexes are referred to as aggregate price indexes.

To construct an aggregate price index between the two communities for these goods, the price ratios would be summed and then divided by the number of entries in the sum to arrive at an average of the price ratios. Finally, the average would be multiplied by 100 in order to express the price index value of location B as a percentage of the base community prices. The price index construction would be as follows:

$$\text{Aggregate Price Index} = \frac{\left(\frac{P_{B1}}{P_{A1}} + \frac{P_{B2}}{P_{A2}} + \frac{P_{B3}}{P_{A3}}\right) X\ 100}{\text{Number of ratios}}$$

An aggregate price index of 145 would, therefore, indicate that the price of the selected goods in location B would be forty-five percent higher than in location A; or conversely, a price index of 97 would indicate that prices would be three percent lower in location B than in location A. Price indexes constructed in this manner are referred to as unweighted price indexes. Such an index gives equal weight or importance to all goods and their prices.

In reality, however, goods have varying roles of relative importance to the consumer. For example, a change in the price of pepper would not carry the same significance as a change in the price of such goods as bread or beef. In order that a price index accurately reflect the significance of a price change in one good relative to other goods purchased by the consumer, weighted prices can be used to construct the index. That is, goods purchased can be assigned a weight reflecting their relative importance to the consumer. In the case of the index equation outlined above, the weights would simply replace the number of ratios in the sum.

Weighted price indexes are also necessary in calculating spatial indexes. Otherwise a large price difference between communities in a good which is less important, or purchased less often, would exert undue influence on the spatial indexes and distort the true magnitude of the overall price difference between communities.

In order to avoid the above-outlined conceptual problems, weights have been assigned to all goods and services priced in the 1984 Place-to-Place Price Comparison Survey. The weights are the same as those used by Statistics Canada for the 1984 Edmonton Consumer Price Index. Further elaboration on construction of the weighted indexes and the weights used is provided in Appendix A.

Since, however, the Bureau's place-to-place price survey only covers 250 of the 400 items surveyed for the CPI by Statistics Canada, item or expenditure weights account for sixty-six percent of the weights for the CPI. The break-down of those goods and services and their item weights not used in the survey is as follows:

Item	Weight %
Food	2.0
Personal Care Products	1.5
Household Supplies	.5
Household Services	1.0
Household Equipment	5.0
Recreation and Leisure	9.5
Transportation	3.9
Clothing	4.4
Shelter	4.5
Utilities	1.4

3. Cautionary Notes

Some of the following points have been briefly discussed at a general level in preceding sections. It is felt, however, that the reader should be aware of the assumptions made and the limitations of the 1984 Place-to-Place Price Comparison Survey in order that the tables be interpreted correctly.

1. The price indexes produced for this publication are not temporal price indexes. That is, prices are not compared over time, as is the case with the Consumer Price Index produced by Statistics Canada. Instead, the place-to-place survey compares prices at one point in time for a specific basket of goods, between communities.

2. The price indexes produced for this publication do not report changes in the cost-of-living for Alberta consumers. The methodology of the Place-to-Place Price Comparison Survey does not measure many of the variables needed to construct a cost-of-living index.

3. The weights assigned to the 250 goods and services for all survey communities are Edmonton-specific; that is, they represent the weighting pattern of the Consumer Price Index for Edmonton in 1984. It was assumed that all survey community expenditure patterns are the same as that for Edmonton. It is likely, however, that the survey community consumption patterns do differ somewhat from the Edmonton pattern through reasons of product availability, product prices, local tastes and preferences, and local incomes.

4. The reader should be aware that the price indexes reported in Tables 1, 2, and 3 represent Edmonton-based price comparisons. They do not represent price comparisons between each of the twenty communities, but are instead, comparisons of Edmonton with each of the other nineteen centres. A different set of price indexes for price comparisons between each of the twenty survey communities is presented in Table 4. These intercommunity price comparisons are based on a smaller basket of eighty-five goods and services that could be precisely matched across all twenty survey locations.

SUMMARY ANALYSIS

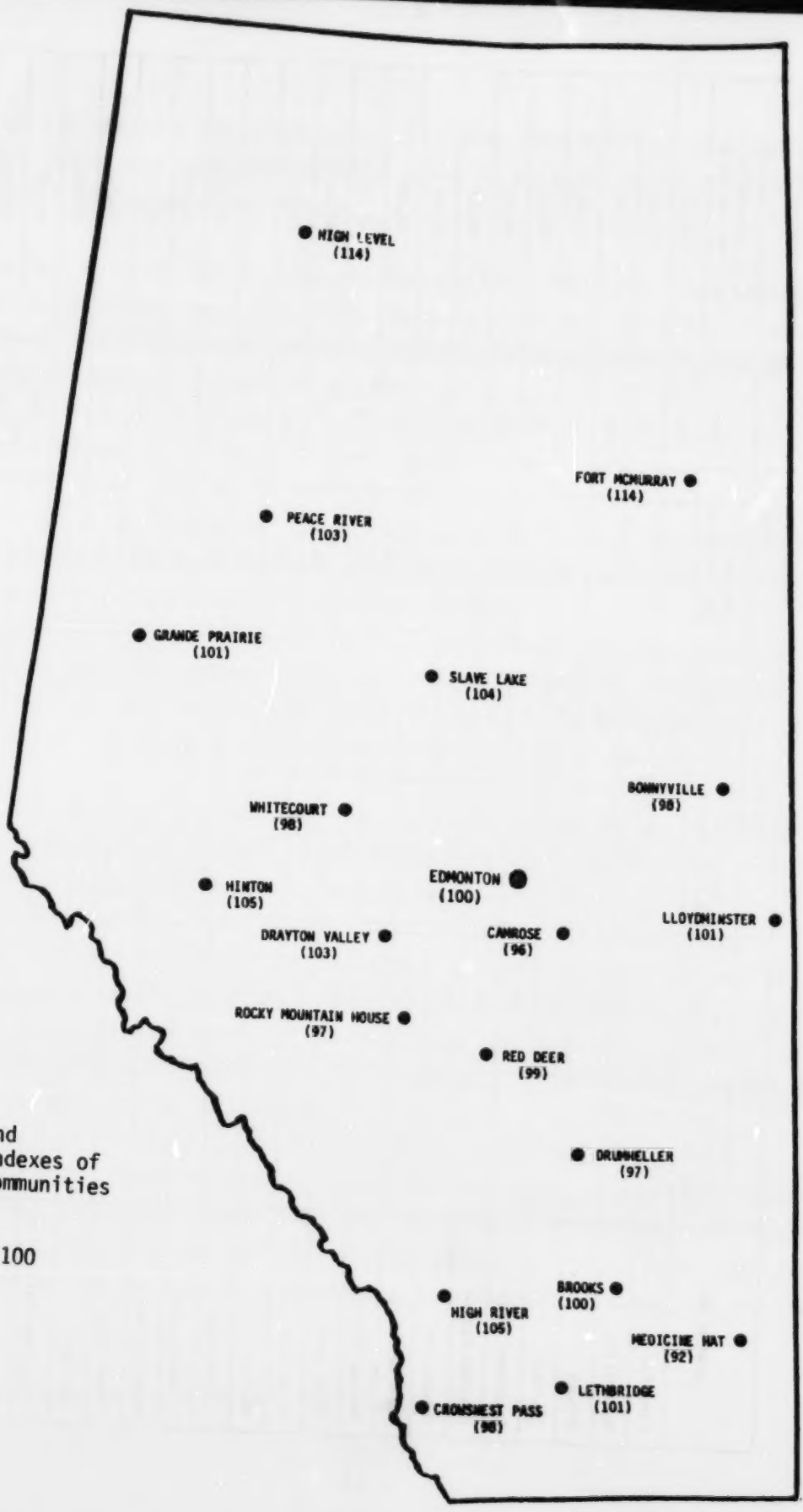
1. Edmonton-Based Comparisons

The results of the 1984 Place-to-Place Price Comparison Survey are presented in Tables 1, 2 and 3 and Figure 1. The indexes contained in the tables and in Figure 1 express price comparisons of nineteen survey communities with Edmonton. As Edmonton prices serve as the reference base for each of the indexes, the Edmonton indexes have been set at 100. Communities with an index of 100 for any component category or for the total basket of goods and services overall, had prices equivalent to Edmonton. Indexes greater than 100 indicate that overall prices were higher than those in Edmonton, while communities with indexes of less than 100 recorded prices lower than those in Edmonton.

Table 1 and Figure 1 (page 13) present the all-item indexes for each of the twenty survey communities. Table 1 is also accompanied by the number of items priced in the community and the respective expenditure weighting. The reader should note that the weighting pattern and the item total varies between communities. The total weight of the 250-item basket of goods was 66.12 percent of the 1984 CPI weighting pattern for Edmonton. Edmonton and five other communities recorded the full weighting pattern and almost half of the centres surveyed had a weighting of 66 percent or greater. The lowest weighting pattern was recorded in High Level at 65.03 percent, only slightly less than the weighting for Edmonton.

Medicine Hat recorded the lowest food and non-food indexes of 95 and 91, respectively. As a result, Medicine Hat had the lowest all-item index of 92, eight percent lower when compared to Edmonton. Low utilities, shelter and restaurant meal indexes contributed to the low all-item index for Medicine Hat.

The highest all-item index, 114, was experienced in both Fort McMurray and High Level. The index for Fort McMurray resulted from a high non-food component of 118, while High Level's was attributable to a high food index. High Level's food index of 120 was ten percent higher than the next highest



Location and
All-Item Indexes of
Surveyed Communities

June 1984
Edmonton = 100

TABLE 1

Edmonton - Based Comparisons
Number of Items Surveyed, Aggregate Indexes
and Weighting For Selected Communities
June 1984
Edmonton = 100

COMMUNITIES	FOOD		NON-FOOD		ALL-ITEM		Weighting Pattern (% of expenditure on items surveyed)
	Number of Items Surveyed	Index	Number of Items Surveyed	Index	Number of Items Surveyed	Index	
Edmonton	115	100	135	100	250	100	66.12
Bonnyville	115	106	133	96	248	98	65.83
Brooks	115	99	132	100	247	100	65.71
Camrose	115	97	134	96	249	96	66.00
Crowsnest Pass	115	104	129	96	244	98	65.43
Drayton Valley	115	108	132	101	247	103	65.92
Drumheller	115	101	135	95	250	97	66.12
Fort McMurray	115	106	133	118	248	114	65.98
Grande Prairie	115	97	134	103	249	101	66.06
High Level	114	120	127	112	241	114	65.03
High River	115	103	131	98	246	99	65.49
Hinton	115	106	133	105	248	105	65.95
Lethbridge	115	100	135	101	250	101	66.12
Lloydminster	115	100	134	102	249	101	66.06
Medicine Hat	115	95	135	91	250	92	66.12
Peace River	115	105	135	103	250	103	66.12
Red Deer	115	96	135	99	250	99	66.12
Rocky Mountain House	115	100	132	96	247	97	65.86
Slave Lake	115	110	129	103	244	104	65.27
Whitecourt	114	105	132	95	246	98	65.91

Notes: Variations in the weighting pattern and number of items surveyed arise due to the lack of availability and comparability of certain items in some communities.

index of 110 recorded for Slave Lake. For both Fort McMurray and High Level, the cost associated with transporting goods is a factor which contributed to the overall higher all-item indexes.

Besides Fort McMurray and High Level, seven other communities experienced all-item indexes higher than Edmonton, ranging from 101 to 105. The seven communities were Drayton Valley, Grande Prairie, Hinton, Lethbridge, Lloydminster, Peace River and Slave Lake.

One survey community, Brooks, matched Edmonton with an all-item index of 100, while eight other centres in addition to Medicine Hat experienced all-item indexes lower than Edmonton. These lower all-item indexes ranged from 96 to 99 and were observed in Bonnyville, Camrose, Crowsnest Pass, Drumheller, High River, Red Deer, Rocky Mountain House and Whitecourt.

Compared to the 1983 survey results, the range between the high and low all-item indexes has not changed significantly. In 1983 the all-item index ranged from 94 to 113, while in the 1984, the spread was from 92 to 114.

The indexes observed in the food and non-food groups do not indicate any general patterns or trends. For example, the food indexes are not consistently higher than non-food, nor is the reverse case evident.

The food indexes and weighting patterns, as well as the indexes of the component categories of the food index, are detailed in Table 2. For the food indexes, the full complement of survey items was available in most survey communities. High Level and Whitecourt, with only slightly less than the full complement, were the two exceptions.

Within the eight component categories of the food index, the price indexes of the nineteen comparison communities vary by a range of approximately twenty-five percent, but with the majority of the centres differing from Edmonton by about five to ten percent.[6] Two component categories, however, do not fall

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[6] These differences may be either positive or negative.

TABLE 2

Edmonton - Based Comparisons
Food Indexes by Component Categories For
Selected Communities
June 1984
Edmonton = 100

COMMUNITIES	TOTAL		COMPONENT CATEGORY INDEXES							
	Food Index	Food Weighting Pattern %	Dairy	Fats and Oils	Cereals and Breads	Processed Fruit and Vegetables	Fresh Fruit and Vegetables	Meat, Fish Poultry	Frozen and Packaged Food	Restaurant Meals
Edmonton	100	17.32	100	100	100	100	100	100	100	100
Bonnyville	106	17.32	108	107	101	106	124	103	109	103
Brooks	99	17.32	103	105	102	103	111	107	103	86
Camrose	97	17.32	100	101	99	103	107	105	103	84
Crowsnest Pass	104	17.32	106	107	109	105	120	109	104	93
Drayton Valley	108	17.32	111	107	116	106	120	104	109	104
Drumheller	101	17.32	103	101	103	105	116	110	105	88
Fort McMurray	106	17.32	105	107	109	106	132	111	108	94
Grande Prairie	97	17.32	102	102	103	101	115	98	100	88
High Level	120	17.30	123	118	122	126	123	108	124	123
High River	103	17.32	106	107	116	106	99	97	104	100
Hinton	106	17.32	107	107	117	103	122	106	106	98
Lethbridge	100	17.32	99	100	99	101	107	106	100	96
Lloydminster	100	17.32	106	110	103	102	110	103	103	91
Medicine Hat	95	17.32	99	95	98	100	104	102	97	86
Peace River	105	17.32	110	110	114	109	127	110	110	90
Red Deer	96	17.32	101	101	111	100	107	104	101	81
Rocky Mtn. House	100	17.32	102	104	101	103	106	108	103	92
Slave Lake	110	17.32	111	117	114	115	130	113	109	101
Whitecourt	105	17.30	111	113	109	108	130	102	127	89

into this pattern: fresh fruit and vegetables, and restaurant meals. For the fresh fruit and vegetable category, the price indexes for the nineteen communities are, on average, seventeen percent higher than the Edmonton index. The large price difference is likely the result of the high cost of transporting perishable goods beyond the major distribution centres.

In the restaurant meal category, fourteen of the nineteen comparison communities had lower price indexes than Edmonton, with the indexes of these fourteen communities being, on average, ten percent lower than Edmonton.[7] Within the food index, the restaurant category has a fairly large weighting (see Appendix B). As a result, those communities with comparatively low restaurant meal indexes are also the communities with overall lower food indexes.

Eleven of the survey communities had food price indexes higher than Edmonton, with High Level recording the highest overall index of 120. The remaining communities had equivalent or lower price indexes. As mentioned above, Medicine Hat recorded the overall lowest food index of 95. In general, higher food indexes were recorded in those centres located at a greater distance from either major distribution centres, or food producing areas. Examples of higher priced centres, in addition to High Level mentioned above, include Slave Lake and Fort McMurray with food indexes of 110 and 106, respectively.

Table 3 presents the total non-food indexes and weighting patterns for the twenty survey communities, as well as the component category indexes. Greater difficulties were encountered in pricing the full complement of 135 non-food items in the survey communities than was the case with the food items. For the non-food items, the full complement of items was unavailable

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[7] As a cautionary note, the reader should be aware that restaurant meals are one of the more difficult items to compare due to factors such as food quality and service which are difficult to standardize.

TABLE 3

Edmonton - Based Comparisons
Non-Food Indexes by Component Categories For
Selected Communities
June 1984
Edmonton = 100

COMMUNITIES	TOTAL		COMPONENT CATEGORY INDEXES								
	Non-Food Index	Non-Food Weighting Pattern $	Personal Care Products	Household Supplies	Household Services	Household Equipment	Recreation and Leisure	Transportation	Clothing	Shelter	Utilities
Edmonton	100	48.80	100	100	100	100	100	100	100	100	100
Bonnyville	96	48.51	93	104	106	104	107	101	104	81	106
Brooks	100	48.39	107	105	100	123	102	104	108	91	103
Camrose	96	48.69	92	98	100	96	96	101	105	84	114
Crowsnest Pass	96	48.12	100	101	113	97	105	103	98	81	117
Drayton Valley	101	48.61	108	109	103	96	103	104	105	92	108
Drumheller	95	48.80	97	102	105	97	99	98	102	81	130
Fort McMurray	118	48.66	114	107	115	102	106	118	97	128	119
Grande Prairie	103	48.74	107	99	120	96	111	105	109	91	123
High Level	112	47.73	127	117	138	115	110	114	108	102	140
High River	98	48.18	105	103	104	101	105	98	111	86	117
Hinton	105	48.63	107	107	110	97	105	105	105	105	103
Lethbridge	101	48.80	95	100	108	104	101	104	106	96	109
Lloydminster	102	48.74	106	109	101	93	102	100	114	92	131
Medicine Hat	91	48.80	91	102	100	101	101	98	105	83	67
Peace River	103	48.80	105	113	113	118	107	99	105	86	130
Red Deer	99	48.80	101	105	102	106	104	98	112	94	102
Rocky Mtn. House	96	48.54	92	104	93	106	102	99	103	88	109
Slave Lake	103	47.54	107	105	108	101	109	104	110	90	129
Whitecourt	95	48.61	107	111	105	100	102	100	110	76	110

in fourteen locations. Despite the lack of availability of some items in most communities, the non-food weighting pattern for seventeen of the nineteen communities was very close to the sum of the weights for Edmonton of 48.8 percent.

The highest overall non-food price index was observed in Fort McMurray at 118, with the lowest being observed in Medicine Hat at 91. About one half of the nineteen comparative communities recorded non-food indexes higher than Edmonton. As in the case of the food indexes, these higher indexes were found in centres located at greater distances from large distribution centres. In addition to Fort McMurray mentioned above, examples of these higher index centres include High Level, Hinton and Grande Prairie, with indexes of 112, 105 and 103, respectively.

Most of the survey communities that experienced equivalent or lower non-food indexes than Edmonton were either regional population centres or were located in close proximity to large urban centres.

The component categories, shelter and utilities, however, do not follow the above-described patterns of price variations. Sixteen centres recorded lower shelter indexes than Edmonton. These lower shelter indexes are the result of the generally lower land prices in small and medium-size communities. The higher shelter indexes found in some communities outside the major urban centres, however, are the result of a different set of factors, including population growth or the high cost of transporting building materials to these centres.

The utilities index contains the widest range of price index levels of any of the component categories. Despite this wide range, eighteen of the nineteen comparative communities experienced price indexes higher than Edmonton. Of these communities, High Level recorded the highest utilities index of 140. Only one community, Medicine Hat, experienced a utilities index lower than Edmonton, recording a utilities index of 67. This low index is attributable to the local ownership of and close proximity to natural gas fields.

2. Intercommunity Comparisons

The indexes presented in Tables 1, 2 and 3 are indexes which expressly compare prices between Edmonton and any of the nineteen comparison locations, for a selected basket of goods and services. The indexes presented in Table 4, however, are the result of price comparisons between any two of the survey locations. They are not the result of comparisons to one constant reference base.

In constructing the intercommunity comparisons of Table 4, it was necessary that the items selected for the comparison were exactly matched across all twenty survey communities to avoid price differentials resulting from the comparison of different substitute items. In the 1984 intercommunity comparisons, the exclusion of substitute items from the total basket of 250 goods and services resulted in a common basket of eighty-five items, which were precisely matched across all twenty survey communities. The total weight of the eighty-five item basket was 42.16 percent of the 1984 CPI weighting pattern for Edmonton. The weighting and number of items for each category of goods and services included in the intercommunity basket are presented in Table 5.

Since the intercommunity price indexes of Table 4 are conceptually different from the preceding Edmonton-based indexes contained in Tables 1, 2 and 3, the following discussion and examples are provided to assist in understanding the intercommunity indexes.

In order to avoid confusion in interpreting Table 4, the reader should be well aware that two different indexes are presented for every comparison between two centres. Each of these two indexes must be interpreted with care. For example, when comparing Brooks and Hinton, two comparisons can be made: Hinton can be compared to Brooks with Brooks as the "Base Community" (reading down Table 4) and Hinton as the "Comparison Community" (reading across), or Brooks can be compared to Hinton with Brooks as the "Comparison Community" (reading across) and Hinton as the "Base Community" (reading down).

That is, when Brooks and Hinton are compared, with Brooks serving as the base community, the intercommunity index is calculated as follows:

$$\frac{\text{Hinton}}{\text{Brooks}} \times 100 = 119$$

The index in this case is interpreted as meaning that prices in Hinton are nineteen percent higher than prices in Brooks for the eighty-five item basket of goods and services.

When Hinton and Brooks are compared, with Hinton serving as the base community, however, the calculation is as follows:

$$\frac{\text{Brooks}}{\text{Hinton}} \times 100 = 84$$

In this case, the price of the basket of goods in Brooks is sixteen percent less than the price in Hinton.

When making comparisons the reader should be aware that when the index is less than 100, the "Comparison Community" has prices lower than the "Base Community" and when the index is greater than 100, the "Comparison Community" has prices higher than the "Base Community."

Table 4 shows that the communities of Bonnyville, Drumheller, Medicine Hat and Peace River experienced lower prices than most of the other survey locations. Fort McMurray, High Level and Hinton, on the other hand, recorded the highest prices for the eighty-five item basket of goods.

The reader should note that when comparing the all-item index of the Edmonton-based comparisons (Table 1) with the eighty-five item indexes of Table 4, several differences may occur. For example, in Table 1, community A may have a lower all-items index than community B, whereas in Table 4, the reverse may be the case. These differences could be the result of several factors.

Table 4
Intercommunity Comparison Indexes for 85 Selected Items

Base Community \ Comparison Community	Edmonton	Bonny-ville	Brooks	Camrose	Crowsnest Pass	Drayton Valley	Drum-heller	Fort McMurray	Grande Prairie
Edmonton	**100**	83	89	87	86	90	80	119	89
Bonnyville	120	**100**	107	105	103	108	96	143	106
Brooks	112	94	**100**	98	96	101	89	134	100
Camrose	115	96	102	**100**	98	103	91	137	100
Crowsnest Pass	117	97	104	102	**100**	105	93	139	104
Drayton Valley	111	93	99	97	95	**100**	89	133	99
Drumheller	126	105	112	110	108	113	**100**	150	111
Fort McMurray	84	70	75	73	72	75	67	**100**	74
Grande Prairie	113	94	100	98	97	101	90	134	**100**
High Level	98	82	87	86	84	88	78	117	87
High River	115	95	102	100	98	103	91	137	102
Hinton	94	79	84	82	81	85	75	112	84
Lethbridge	100	83	89	87	86	90	80	119	89
Lloydminster	101	84	90	88	87	91	81	121	90
Medicine Hat	115	96	102	100	98	103	91	137	102
Peace River	118	98	105	102	101	105	94	140	104
Red Deer	103	86	92	90	88	93	82	123	92
Rocky Mtn. House	109	90	97	95	93	87	86	129	96
Slave Lake	112	93	99	97	96	100	89	133	99
Whitecourt	121	101	107	105	103	108	96	144	107

Table 4 (continued from opposite page)

High Level	High River	Hinton	Leth-bridge	Lloyd-minster	Medicine Hat	Peace River	Red Deer	Rocky Mountain House	Slave Lake	White-court
102	87	106	100	99	87	85	97	92	89	83
122	105	127	120	118	105	102	116	111	107	99
114	98	119	112	111	98	96	109	104	101	93
117	100	122	115	113	100	98	111	106	103	95
119	102	124	117	115	102	99	113	108	104	97
114	97	118	111	110	97	95	108	103	100	92
128	110	133	125	124	109	107	122	116	112	104
86	73	89	84	83	73	71	81	77	75	70
115	98	119	113	111	98	96	109	104	101	93
100	86	104	98	97	86	83	95	90	88	81
117	**100**	121	114	113	100	97	111	106	103	95
96	82	**100**	94	93	82	80	91	87	84	78
102	87	106	**100**	99	87	85	97	92	90	83
103	89	107	101	**100**	88	86	98	93	91	84
117	100	122	115	113	**100**	98	111	106	103	95
120	103	125	117	116	102	**100**	114	108	105	97
105	90	109	103	102	90	88	**100**	95	92	86
111	95	115	108	107	95	92	105	**100**	97	90
114	98	118	112	110	97	95	108	103	**100**	93
123	105	128	120	119	105	103	117	111	108	**100**

First, the basket of goods and services used to build the all-item indexes is not identical. The eighty-five item basket used in Table 4 is a subset of the 250-item basket of Table 1 and as a result, the two indexes have differing weighting patterns. Second, the influence of certain goods and services within each of the index weighting patterns may differ substantially as a result of the varying composition of the all-item baskets. For example, in the Edmonton-based indexes, food items and transportation play a proportionately larger role than is the case with the intercommunity indexes. Whereas community A may have a lower all-item index than community B in Table 1 because of low food and transportation indexes, the reverse may be true in Table 4, where these two components have less influence.

The shelter and utilities components also play varying roles of influence in the two indexes. These two components are responsible for about forty-seven percent of the total weighting of the intercommunity index, but in the Edmonton-based indexes they compose only about twenty-eight percent of the total index. Therefore, those communities with high shelter and utilities indexes in the Edmonton-based all-item index will likely have even higher comparative all-item indexes in the intercommunity indexes because of the change in proportion of the shelter and utilities components. Conversely, those communities with low shelter and utilities indexes in Table 1 will likely have even lower comparative all-item indexes in the intercommunity comparisons. These differing roles played by the various component indexes of the Edmonton-based and intercommunity indexes may explain many of the differences that occur when comparing Table 1 with Table 4.

Table 5

Intercommunity Survey Items and Weighting Pattern

Category	Number of Items Surveyed	Weighting %
All Items	85	42.16
Food	39	9.33
Non Food	46	32.83
Dairy Products	8	1.63
Fats and Oils	0	.00
Cereals and Breads	4	.95
Processed Fruit and Vegetables	0	.00
Fresh Fruit and Vegetables	9	1.09
Meat, Fish, Poultry	8	1.65
Frozen and Packaged Food	7	.82
Restaurant Meals	3	3.19
Personal Care Products	6	1.21
Household Supplies	0	.00
Household Services	5	.71
Household Equipment	1	.05
Recreation, Leisure	12	4.21
Transportation	9	6.33
Clothing	6	.65
Shelter	4	16.00
Utilities	3	3.67

APPENDIXES

APPENDIX A

METHODOLOGY

The basket of goods and services priced throughout the twenty survey communities consisted of 250 items chosen from the 1984 Edmonton Consumer Price Index Survey. A number of items on the CPI list were excluded, however, because of lack of availability or comparability of these items in some of the survey locations.

1. Price Collection

Item prices were surveyed through personal visits by Bureau staff to retail and service establishments in each survey community. Whenever possible, staff were hired by the Bureau in the local communities to conduct the pricing. To ensure a representative sample of prices, survey personnel collected a minimum of three prices per item in each community. Pricers were asked to disregard special or sale prices on an item and to record only regular prices in order to reduce spurious price differences. To minimize time-related biases, prices in all centres were collected within a three-day period, June 11-13, 1984.

2. Matching of Items

To ensure accuracy and consistency in the pricing of the 250-item basket of goods in all twenty survey locations, it was essential that all the items be carefully matched across all communities. In order to facilitate this process, pricers were provided with specification sheets containing a detailed description of each article to be priced, including brand name and size. If the specified brand was unavailable, a list of alternatives was also provided. Survey personnel were asked to price one of the specified brands and to record the price, and other details such as size, colour and style number. If none of the specified brands was available, pricers were asked to price a close substitute and provide a detailed description of the item. This substitute item would then be priced in Edmonton to ensure comparability between the two communities.

By this procedure, item consistency was assured between Edmonton and each community, but could differ among communities for some articles. If a reasonable substitute was unavailable in some communities, these articles were excluded from the survey list for those particular centres.

3. Special Pricing Procedures

Some items of the 250-article basket could not be priced directly in the field through the retail or service outlets of the survey communities. Those items which required special pricing procedures included: monthly housing payments, rental costs, property taxes, and natural gas, electricity, water and sewage charges.

Monthly housing payments were obtained through several steps. Housing prices for a 110 square meter bungalow on an average size lot were provided for each survey location by the appraisal departments of Canada Mortgage and Housing Corporation. A survey of the average mortgage rate and housing down payment in June of 1984 was also conducted. These figures were applied to the total house price in order to obtain average monthly housing payments typical of each centre.

Average monthly rental costs for each survey community were calculated from annual rental cost surveys conducted by Alberta Housing and Canada Mortgage and Housing.

Data provided by Alberta Municipal Affairs concerning total residential assessments and residential mill rates were used to derive the average monthly tax bill per household for each survey community.

In order to calculate monthly natural gas, electricity, and water and sewage charges per household in each of the survey communities, an average monthly household consumption figure was obtained for each item from the Alberta Public Utilities Board. The consumption figure was then multiplied by the applicable utility rates to derive typical household utility costs in each community.

4. Calculation of Indexes

The methodology section of the publication provides the reader with the basic steps in calculating weighted price indexes. A discussion of the need for and selection of weights when calculating the weighted price indexes is also presented. As outlined in the methodology, price ratios are first constructed, comparing each community with Edmonton. These are then weighted and summed to arrive at the various indexes.

A more specific step-by-step outline of the index calculations used in the Place-to-Place Price Comparison Survey is as follows:

Step 1: Ratio of Prices: $$\frac{\text{Average price of item in Community Y}}{\text{Average price of item in Edmonton}}$$

Step 2: Weighted Ratio : Ratio of prices x Item weight

Step 3: Category Index : $$\frac{\text{Sum of weighted ratios for a specific category}}{\text{Sum of item weights for specific category}} \times 100$$

APPENDIX B

TYPE OF ITEMS SURVEYED BY COMPONENT CATEGORY

FOOD ITEMS

Category	Weight
Dairy Products	**1.90**
Fresh Milk	
Whipping Cream	
Sour Cream	
Yoghurt	
Cottage Cheese	
Cheddar Cheese	
Cream Cheese	
Processed Cheese	
Butter	
Canned Milk	
Powdered Milk	
Ice Cream	
Fats and Oils	**.28**
Margarine	
Shortening	
Cooking Oil	
Salad Dressing	
Non-Dairy Creamer	
Cereals and Breads	**1.67**
Breakfast Cereal	
White Flour	
Cake Mix	
Macaroni	
Rice	
Cooked Cereal	
White Bread	
Hot Dog Rolls	
Bran Muffins	
Cookies	
Crackers	
Frozen Cake	
Processed Fruits & Vegetables	**.58**
Canned Peaches	
Canned Pears	
Canned Apple Sauce	
Canned Pineapple	
Canned Fruit Cocktail	
Canned Apple Juice	
Canned Orange Juice	
Raisins	
Canned Corn	
Canned Peas	
Canned Asparagus	
Canned Kidney Beans	
Canned Baked Beans	
Canned Tomatoes	
Canned Tomato Juice	
Fresh Fruit and Vegetables	**1.42**
Oranges	
Bananas	
Apples	

Category	Weight
Fresh Fruits & Vegs. (cont'd)	
Grapefruit	
Grapes	
Potatoes	
Tomatoes	
Lettuce	
Carrots	
Celery	
Onions	
Cabbage	
Turnips	
Cucumbers	
Meat, Fish, Poultry	**3.24**
Sirloin Steak	
Round Steak	
Standing Rib Roast	
Blade Roast	
Stewing Beef	
Hamburger	
Liver	
Bacon	
Sausage	
Weiners	
Smoked Ham	
Cottage Roll	
Pork Chop	
Pork Shoulder Steak	
Lamb	
Chicken	
Turkey	
Eggs	
Frozen Fish	
Canned Meat	
Bologna	
Canned Shrimp	
Canned Salmon	
Canned Tuna	
Frozen & Packaged Food	**2.46**
Frozen Orange Juice	
Frozen Fruit	
Frozen Potatoes	
Frozen Peas	
Frozen Corn	
Frozen Fish Specialty	
Frozen Meat Pie	
Canned Soup	
Baby Food	
Chocolate Bar	
Sugar	
Baking Soda	
Corn Syrup	
Drink Crystals	
Dessert Crystals	
Honey	
Jam	
Peanut Butter	
Spices	
Pickles	
Catsup	
Macaroni Dinner	
Canned Stew	
Potato Chips	

Category	Weight	Category	Weight
Frozen & Packaged Food (cont'd)		Restaurant Meals	5.76
		Breakfast	
Roasted Coffee		Lunch	
Instant Coffee		Dinner	
Tea		Snack	
Soft Drink		Carry-Out Meal	

NON-FOOD ITEMS

Personal Care Products	2.30	Household Supplies	1.19
Soap		Facial Tissues	
Shaving Cream		Garbage Bags	
Toothpaste		Light Bulbs	
Shampoo		Envelopes	
Hair Colour		Food Wrap	
Cream/Lotion		Aluminum Foil	
Perfume		Paper Towels	
Deodorant		Dish Soap	
Razor Blades		Dishwasher Detergent	
Patent Medicine		Fabric Softener	
Cold Remedy		Detergent	
Vitamins		Bleach	
Bandages		Scouring Powder	
Cosmetics		Floor Wax	
Toilet Tissue			
Sanitary Napkins		Household Services	.77
Disposable Diapers		Dry Cleaning	
Prescribed Medicine		Coin Laundry	
Men's Haircut		Shoe Repair	
Women's Haircut		T.V. Repair	

Category	Weight
Household Services (cont'd)	
Plumber	
Jewellery Repair	
Tailoring	
Household Equipment	1.72
Garden Supplies	
Garbage Can	
Electric Drill	
Bed Sheets	
Towels	
Blow Dryer	
Vacuum Cleaner	
Coffee Maker	
Dishes	
Covered Casserole	
Recreation, Leisure	5.35
Television	
Record	
Camera	
Camera Film	
Film Processing	
Batteries	
Driving Lessons	
Motel	
Newspaper	
Magazine	
Beer Consumed in Licensed Premises	
Liquor Consumed in Licensed Premises	
Cigarettes	
Sporting Event	
Sporting Equipment	
Monopoly Game	
Admission to Movie	
Flowers	
Bicycle	
Camping Equipment	
Transportation	14.19
Gasoline	
Oil	
Automobile Equipment	
Oil Changes	
Towing Charge	
Parking	
Taxi Fare	
Car Rental	
Tires	
Car Repair Part	
Minor Tune-Up	
Auto Insurance	
Car	
Truck	

Category	Weight
Clothing	4.62
Women's:	
Raincoat	
Sweater	
Suit	
Blouse	
Dress	
Slacks	
Brassiere	
Briefs	
Slip	
Pantyhose	
Wrist Watch	
Purse	
Men's:	
Coat	
Suit	
Dress Slacks	
Shirt	
Casual Slacks	
Jeans	
Sports Shirt	
Sportswear	
Sweater	
Briefs	
Undershirt	
Socks	
Wallet	
Wrist Watch	
Boys':	
Jeans	
Jacket	
Sports Shirt	
Briefs	
Socks	
Girls':	
Jacket	
Slacks	
Jeans	
Socks	
Infants':	
Sleepers	
Footwear:	
Men's Dress Shoes	
Men's Casual Shoes	
Women's Dress Shoes	
Women's Casual Shoes	
Girls' Shoes	
Material	
Zipper	
Shelter	16.00
Tenants' Insurance	
New House	
Rental Costs	
Property Taxes	
Utilities	3.67
Natural Gas	
Electricity	
Water & Sewage	